



# Confessions of an Itinerant Physicist

David Holder

*The Cockcroft Institute,  
and the University of Liverpool Department of Physics.*



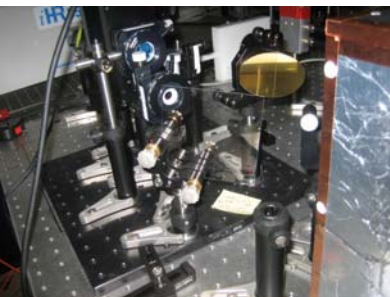
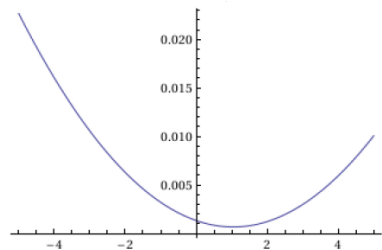
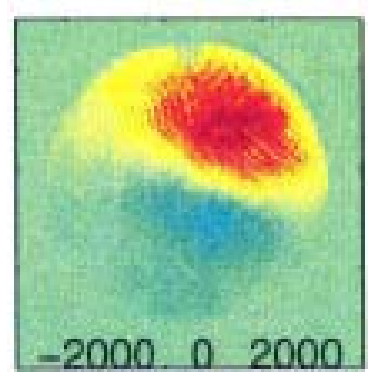
20<sup>th</sup> March 2012

# What I'm going to cover

- Employment history (highlights?);
- Comparison of large and small private sector and public sector employers;

# At present

- 4<sup>th</sup> year PhD student at the University of Liverpool.
- In the Accelerator Science group
- Currently writing up and looking for a job!
- Wanted to work and earn some money when I graduated – could go back and do a PhD at a later date.
- Had not planned to wait until I was 44!





# Philips Electronics



- Milk round job
- Designing infra-red spectrometers;
- Had my photo from Grimsby local paper;
- Very professional personnel development;
- Most like STFC – well managed, teamwork;
- Lots of study and calculation before building anything;
- Principle scientists – only place I have seen these;
- Met Dr Bowmans –inventor of CD;
- Pretended to be from a fictional university to collect brochures from competitors at shows;
- Had to pose as an employee of “Contract Chemicals” to get competitors machine fixed – but then did not know the address when engineered filled in his report!

# VG/Fisons/ThermoElectron/Waters

- Small company (VG would split it up once it got above certain size);
- At the end of the year – target £100k turnover per person – would sack people to achieve this;
- Lots of freedom to do your own thing – as long as it worked
- Small companies – very personal (if your face didn't fit – you were fired – even if you were good)
- MD would stand by the exit at official end of the day and ask people where they were going!
- First prototype of device I worked on was built from copying schematic from competitor's brochure!
- No culture of modelling or calculation – just get ideas made once a week and then try them out;
- Made more successful innovations there than any where else.



# VG/Fisons/ThermoElectron/Waters

- Travelled a lot to customers to install the equipment I had designed – so much so that I turned down a trip to the University of Hawaii as I was tired of the flying;
- One year – directors did not get bonus – called into office for dressing down as they had come to expect it, even though it was not my fault (seriously unimpressed);
- Got a job with their biggest competitor – copied all my files off PC and then reformatted disk (no servers in those days) just before being escorted off site (1 month's paid holiday!)
- They rang the competitor to check – they hadn't heard of me – did not go into R&D department;
- Group bought by large American Corporation – had to float my bit off separately – so directors all took a stake – then it was bought by another American Corporation - directors became massively rich...

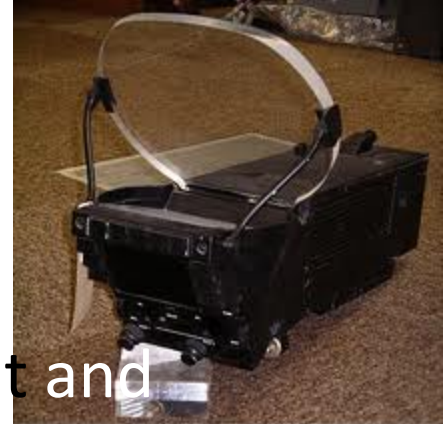
# Kratos Analytical (Shimadzu)

- Working as a chemist! Customer demonstration of mass spectrometer systems;
- Long hours but good people to work with;
- Lots of business lunches!
- Made redundant! (not enough points);
- Lots of people with no work to do – painting the inside of the factory.



# Rank Brimar

- Mixture of professional broadcast equipment and military avionics design;
- No mechanical engineers – did all my own mechanical design;
- Sold by parent company – bought by venture capitalists and directors (why didn't they offer anybody else the chance to buy a share in the company?)
- After six months – all called into meeting by directors (who had all bought themselves new cars) –and asked why productivity/sales/profits hadn't leapt up after their takeover – may be they had been taking it easy before but we weren't!



# STFC Daresbury

- Accelerator physics – SRS, DIAMOND, ALICE (ERLP) etc.
- Stimulating – brightest (but also some of the least normal) people I have worked with.
- Technically difficult, but also professionally – on a day to day basis it can be hard to be motivated – projects last years/most things you work on won't get built!
- Need the input of many very specialised people – over whom you have no power – so you have to get them to want to work on your project rather than someone else's;
- Massive bureaucratic system – and lots of meetings (but with biscuits and tea for the first time!)
- Very secure, reasonable salary, great pension (once anyway), most transparent system for promotion;
- Still limited scope for promotion without going into management – technically excellent people rarely make good managers.

# Random thoughts...

- Large private companies and public sector employers are very similar – lots of large teams/meetings/project management/bureaucracy/hierarchy;
- Private companies will pay more, but you will usually still get a better pension with public sector;
- Public sector jobs much more secure;
- Private companies will expect you to travel in your own time (public sector will pay you)
- Small companies are **very** personal – if your face doesn't fit (or you're not prepared to suck up to the boss) you're not going anywhere – however good you are;
- It's much easier to make a big impact in a small company
- If you like to travel – go into public research – conferences in lots of interesting places;
- Work somewhere with a factory floor that you have to interact with – at least once in your career;
- Look at the gender balance of the workplace – better balance makes it more interesting.





# The End

Thank You

Questions?



The Physics Department and CTL proudly present

# What can you do with a physics degree?

This week's feature stars:

## David Holder

**Job Description:** David graduated with a physics degree from Oxford University in 1985 and has worked as a physicist for a mixture of large multinational and very small companies, in fields including scientific instrumentation, broadcast equipment and defence, before doing accelerator physics at Daresbury Lab for ten years. He finally got round to doing a PhD in 2008 and is in his final year at Liverpool. He will compare his experience of these different working environments and also give some practical tips on doing well at interviews.

## Pete Fishwick

Degree: BSc Southampton

Company: Smart Holograms

Job title: Researcher and Laser Safety Officer

**Job Description:** Smart Holograms is a research company working on holographic medical devices for the continuous monitoring of glucose in the body. This has wide scale applications both in intensive care treatment as well as in home use. My role includes the planning and actuation of experiments in an exciting new field as well as being responsible for the design and safe use of the Laser systems that are at the core of our technology.

Friday 2<sup>nd</sup> Mar @ 2-3pm in T6